

**REMARKS/ARGUMENTS**

1. Objection to the Oath/Declaration:

The applicant's oath/declaration has been reviewed by the examiner, and the applicant's name does not match the applicant's signature in the Oath/Declaration.

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**Response:**

As seen in the Image File Wrapper for the instant application in the PAIR system database, the declaration filed on 10/06/2004 contains the applicant's name "Wenchi Hsu" along with the applicant's signature. This declaration is listed in the image file wrapper between the Authorization for Extension of Time all replies and the Fee Worksheet (PTO-06). Therefore, the applicant believes that the Declaration has been properly submitted.

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2. Rejection of claims 1-12 under 35 U.S.C. 101:

15            Claims 1-12 are rejected under 35 U.S.C. 101, because the claimed invention lacks utility.

With respect to claims 1 and 7, the claims provide a tangible result if all steps of the claim are accomplished. However, the conditional statements including the word "when" provides an alternative where the step is not done. Therefore, when the steps do not occur, there is no tangible result from the claim.

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**Response:**

Claims 1 and 7 have been amended, and the applicant believes that the amended claims 1 and 7 produce a tangible result. Claim 1 recites "pre-fetching a predetermined data from the memory and subtracting a first value from the counter value each time pre-fetching is activated", whereas claim 7 recites "pre-fetching a predetermined data from the memory and adding a first value to the counter value each time pre-fetching is activated".

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5 The applicant is applying for patent protection only on the set of conditions expressed in the steps of claims 1 and 7. When the conditions are met, the claimed steps are performed. Therefore, the applicants submit that the currently amended versions of claims 1 and 7 produce a tangible result for the claimed set of conditions. Claims 2-6 and 8-12 are dependent on claims 1 and 7, and should be allowed if claims 1 and 7 are allowed. Reconsideration of claims 1-12 is therefore respectfully requested.

10 3. Rejection of claims 26, 39, and 40 under 35 U.S.C. 112, second paragraph:

Claims 26, 39, and 40 are rejected under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15 **Response:**

Claims 26, 39, and 40 have been amended to correct these errors. The terms “third threshold value” and “fourth threshold value” are now amended to become the terms “third value” and “fourth value”, respectively. As such, reconsideration of claims 26, 39, and 40 is respectfully requested.

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4. Rejection of claims 1-3, 6, 13-17, 21-23, and 27-28 under 35 U.S.C. 102(e):

Claims 1-3, 6, 13-17, 21-23, and 27-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Kadi (US 2004/0117556).

25 **Response:**

Claims 1 and 13 have been amended to overcome the claim rejection. Claim 1 has been amended to recite the step of “pre-fetching a predetermined data from the memory and subtracting a first value from the counter value **each time** pre-fetching

is activated". This amendment is fully supported by the specification and drawings of the instant application, and no new matter is added. The claimed invention subtracts a first value from the counter each time pre-fetching is activated, but adds the second value to the counter only when a cache hit occurs.

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In contrast, Kadi teaches in paragraph [0033] that the threshold value is incremented for a cache hit and decremented for a miss. However, Kadi does not teach decrementing the threshold value each time pre-fetching is activated. This means that when a cache hit occurs, the threshold value is only incremented instead of being decreased and then increased as in the claimed invention. Therefore, Kadi does not teach all of the claimed steps contained in claim 1 and does not anticipate the currently amended claim 1.

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Claim 13 has been amended to state that the controller changes the counter value each time pre-fetching is activated and when a cache hit occurs. As was stated with respect to claim 1, Kadi does not teach changing the threshold value each time pre-fetching is activated, and thus fails to anticipate the currently amended claim 13.

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Claim 3 recites that "when the pre-fetching is stopped and the cache hit occurs, the second value is added to the counter value". Thus, the counter value is still adjusted even when pre-fetching has been stopped. Cache hits will cause the second value to be added to the counter value for increasing the counter value over time.

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On the other hand, Kadi teaches at the end of paragraph [0032], "In one embodiment, the prefetch occurs for the next memory line when: prefetching is allowed (ON value) and either there are no outstanding transactions or the buffers are not full or the last transaction resulted in a miss condition." Thus, pre-fetching will only occur when it is allowed (turned ON). Kadi goes on to say in paragraph

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[0033] that the threshold value is only incremented or decremented when pre-fetching is enabled. Therefore, Kadi does not teach increasing the threshold value when pre-fetching is stopped, as is recited in claim 3. For these reasons, Kadi fails to anticipate claim 3.

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Furthermore, claims 2-3, 6, 13-17, 21-23, and 27-28 are dependent on claims 1 and 13, and should be allowed if their respective base claims are allowed. Reconsideration of claims 1-3, 6, 13-17, 21-23, and 27-28 is therefore respectfully requested.

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5. Rejection of claims 4 and 18-19 under 35 U.S.C. 103(a):

Claims 4 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi in view of Kadowaki (US 6,654,873).

15 **Response:**

Claim 4 recites the limitation "wherein when the pre-fetching is stopped and the counter value is larger than a second threshold value, pre-fetching data from the memory is restarted." Kadowaki teaches in column 4, lines 62-65 "Then, when the newly started processing of the "macro command" is completed, the sequence controller 22 immediately makes the prefetching and pre-decoding processing restart from the suspended state." However, Kadowaki does not teach or suggest the counter value being larger than a second threshold value before pre-fetching is restarted. Therefore, the prior art combination of Kadi and Kadowaki fails to teach all of the limitations contained in claim 4.

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Similar to claim 4, claim 18 contains the limitations of "restarting pre-fetching data from the memory when the counter value becomes larger than a second threshold value after the pre-fetching is stopped". Since Kadowaki does not teach the

counter value being larger than a second threshold value before pre-fetching is restarted, the cited prior art fails to teach all of the limitations contained in claim 4.

5 Claim 19, like claim 3, recites “the second value is added to the counter value when the pre-fetching is stopped and the cache hit occurs”. However, as was stated with respect to claim 3, Kadi does not teach increasing the threshold value when pre-fetching is stopped. Thus, claim 19 is patentable over the cited prior art.

10 In addition, claims 4 and 18-19 are dependent on claims 1 and 13, and should be allowed if their respective base claims are allowed. Reconsideration of claims 4 and 18-19 is therefore respectfully requested.

6. Rejection of claims 7-9 and 12 under 35 U.S.C. 103(a):

15 Claims 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi in view of Steely (US 5,038,278).

**Response:**

20 Claim 7 has been amended similar to claim 1 to recite the step “pre-fetching a predetermined data from the memory and adding a first value to the counter value **each time** pre-fetching is activated”.

25 Steely teaches in column 4, lines 9-22 that a counter is incremented when a miss is detected, but does not teach increasing the counter each time pre-fetching is activated, as is recited in the currently amended claim 7. Therefore, the prior art combination fails to anticipate all of the limitations contained in claim 7.

Claim 9, similar to claims 3 and 19, recites “when the pre-fetching is stopped and the cache hit occurs, the counter value is decreased by the second value.”

In contrast, Kadi does not teach increasing or decreasing the threshold value when pre-fetching is stopped. For these reasons, the cited prior art fails to teach the limitations recited in claim 9.

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In addition, claims 8-9 and 12 are dependent on claim 7, and should be allowed if claim 7 is allowed. Reconsideration of claims 7-9 and 12 is therefore respectfully requested.

10 7. Rejection of claim 10 under 35 U.S.C. 103(a):

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi and Steely, and further in view of Kadowaki.

**Response:**

15 Claim 10, similar to claim 4, recites "when the pre-fetching is stopped and the counter value is smaller than a second threshold value, pre-fetching data from the memory is restarted."

20 Kadowaki does not teach or suggest the counter value being smaller than a second threshold value before pre-fetching is restarted. Therefore, the cited prior art combination fails to teach all of the limitations contained in claim 10.  
Reconsideration of claim 10 is respectfully requested.

8. Rejection of claims 24-25 under 35 U.S.C. 103(a):

25 Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi and Steely, and further in view of Kadowaki.

**Response:**



Claims 24 and 25 are dependent on claim 13, and should be allowed if claim 13 is allowed. Reconsideration of claims 24 and 25 is respectfully requested.

9. Rejection of claims 29-35, 37-38, and 41-42 under 35 U.S.C. 103(a):

5            Claims 29-35, 37-38, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi in view of Kadowaki (US 6,654,873).

**Response:**

10            Claim 29 has been amended to state that the “counter value is changed each time pre-fetching is performed and when a cache hit occurs”. As was stated with respect to claim 13, Kadi does not teach changing the threshold value each time pre-fetching is activated, and thus fails to anticipate the currently amended claim 29.

15            Claim 35 recites “wherein the pre-fetching is stopped when the counter value becomes smaller than the first threshold value, and the pre-fetching is restarted when the counter value becomes larger than the second threshold value”. As was stated with respect to claim 4, Kadowaki teaches in column 4, lines 62-65 “Then, when the newly started processing of the "macro command" is completed, the sequence controller 22 immediately makes the prefetching and pre-decoding processing restart  
20            from the suspended state.” However, Kadowaki does not teach or suggest the counter value being larger than a second threshold value before pre-fetching is restarted. Therefore, the cited prior art fails to teach all of the limitations contained in claim 35.

25            Moreover, claims 30-35, 37-38, and 41-42 are all dependent on claim 29, and should be allowed if claim 29 is allowed. Reconsideration of claims 29-35, 37-38, and 41-42 is therefore respectfully requested.

10. Rejection of claim 39 under 35 U.S.C. 103(a):

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi and Kadowaki and further in view of Steely.

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Claim 39 is dependent on claim 29, and should be allowed if claim 29 is allowed. Reconsideration of claim 39 is respectfully requested.

11. Rejection of claims 5, 20, and 36 under 35 U.S.C. 103(a):

10             Claims 5, 20, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi and Kadowaki, and further in view of the Examiner's taking of Official Notice.

**Response:**

15             Claims 5, 20, and 36 are dependent on claims 1, 13, and 29 and should be allowed if their respective base claims are allowed. Reconsideration of claims 5, 20, and 36 is therefore respectfully requested.

12. Rejection of claims 11 and 40 under 35 U.S.C. 103(a):

20             Claims 11 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadi, Kadowaki, and Steely, and further in view of the Examiner's taking of Official Notice.

**Response:**

25             Claims 11 and 40 are dependent on claims 7 and 29, and should be allowed if claims 7 and 29 are allowed. Reconsideration of claims 11 and 40 is therefore respectfully requested.



Appl. No. 10/711,792  
Amdt. dated April 10, 2007  
Reply to Office action of January 10, 2007

In view of the claim amendments and the arguments in favor of patentability, the applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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